

AMENDMENT TO THE CLAIMS:

Claims 1-35 (cancelled).

36. (currently amended) A method for performing chemical or biochemical reactions involving temperation and homogenization, comprising the steps of:

- a) loading a reaction vessel with a reaction mixture to be homogeneously incubated,
- b) subjecting said reaction vessel and its content to a centrifugal force exceeding 500 x g, and
- c) heating and/or cooling the reaction mixture in said reaction vessel under said centrifugal force, whereby the gravitation field acting upon more dense subsets of the reaction mixture leads to a thoroughly mixed homogeneous reaction mixture and a homogeneous temperature distribution in the bulk of the reaction mixture.

37. (currently amended) The method according to claim 36, wherein,

the homogenization with respect to temperature in the bulk of the reaction mixture step c) is performed by simultaneous heating a first portion of the reaction mixture and cooling a second portion of the reaction mixture,
~~centrifugal force in step b) exceeds 500 x g~~

the heating is performed using a radiation source emitting radiation within a wavelength generating heat in the reaction mixture contained in said reaction vessel and by air at a temperature of 200°C to 800°C.

38. (currently amended) The method according to claim 36 37, wherein the centrifugal force is in the range of 500 to 20,000 x g.

39. (currently amended) The method according to claim 36 37, wherein the centrifugal force is in the range of 1,500g to 20,000 x g.

40. (currently amended) The method according to claim 36 37, wherein the centrifugal force is in the range of 5,000 to 15,000 x g.

41. (currently amended) The method according to claim 36 37, wherein the heating of the reaction vessel is performed using a radiation source emitting radiation within a wavelength generating heat in the reaction mixture contained in said reaction vessel.

42. (currently amended) The method according to claim 36 37, wherein the cooling of the reaction vessel is performed by

rotating the reaction vessel in an environment containing one of ambient air, refrigerated air, a refrigerated gas other than air.

43. (currently amended) The method according to claim 36 37, wherein the temperature measurement is performed using an IR-sensor monitoring the temperature of the contents in the rotating vessels.

44. (currently amended) The method according to claim 36 37, wherein the temperation and homogenization involves repeated temperation in the form of cyclic temperature changes.

45. (currently amended) The method according to claim 36, wherein the homogenization with respect to temperature in the bulk of the reaction mixture step c) is performed by ~~simultaneous~~ simultaneously heating a first portion of the reaction mixture and cooling a second portion of the reaction mixture.

46. (currently amended) The method according to claim 36 ~~any one of claims 36-45~~, wherein the reaction is a PCR reaction.

47. (previously presented) The method according to claim 36, wherein said reaction mixture is heated by air, wherein said air is heated at a temperature of 200°C to 800°C.

48. (previously presented) The method according to claim 36, wherein said reaction mixture is heated by air, said air at a temperature of 600°C.

49. (previously presented) The method according to claim 46, wherein said PCR reaction is completed in 20 minutes or less.

50. (previously presented) A device for performing chemical or biochemical reactions involving temperation and homogenization, comprising:

a) means for holding a reaction vessel containing a reaction mixture to be homogeneously incubated,

b) means for subjecting the reaction vessel and its content to a centrifugal force, and

c) means for heating and cooling the temperature of the contents of the reaction vessel to temperatures appropriate for desired reactions under said centrifugal force, whereby the gravitation field acting upon more dense subsets of the reaction mixture leads to a thoroughly mixed homogeneous reaction mixture and a homogeneous temperature distribution in the bulk of the reaction mixture.

51. (previously presented) The device according to claim 50, wherein said means for subjecting the reaction vessel

and its contents is capable of creating a centrifugal force that exceeds 500 x g.

52. (previously presented) The device according to claim 50, wherein said means for subjecting the reaction vessel and its contents is capable of creating a centrifugal force that exceeds 500 to 20,000 x g.

53. (previously presented) The device according to claim 51, wherein said means for subjecting the reaction vessel and its contents is capable of creating a centrifugal force that exceeds 1,500g to 20,000 x g.

54. (previously presented) The device according to claim 51, wherein said means for subjecting the reaction vessel and its contents is capable of creating a centrifugal force that exceeds 5,000 to 15,000 x g.

55. (previously presented) The device according to claim 51, wherein the means for heating the contents of the reaction vessel comprise means emitting radiation within a wavelength generating heat in the reaction mixture contained in said reaction vessel.

56. (previously presented) The device according to claim 50, wherein the means for cooling the contents of the

reaction vessel comprise means for exposing a rotating reaction vessel to an environment containing one of ambient air, refrigerated air, a refrigerated gas other than air.

57. (previously presented) The device according to claim 50, wherein the means for measuring the temperature of the reaction mixture comprise means for monitoring IR radiation emitted by the reaction mixture.

58. (previously presented) The device according to claim 50, wherein the means for heating and cooling the temperature is capable of repeated temperation in the form of cyclic temperature changes.

59. (currently amended) The device according to claim 50, wherein the heating and cooling means is capable of conducting simultaneous heating and cooling by heating a first portion of the contains and, at the same time, cooling a second portion of the contents.

60. (currently amended) The device according to claim 50 ~~any one of claims 50-59~~, wherein the device is capable of performing a PCR reaction.

Application No. 09/937,383
Amdt. Dated January 26, 2004
Reply to Office Action of September 25, 2003
Docket No. 1506-1042

61. (new) The device of claim 51, wherein the means for heating provides air to heat the reaction mixture, the air heated at a temperature of 200°C to 800°C.